State of Utah
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

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Michael O. Leavitt
Governor
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Division Director

August 3, 1998

TO: Minerals File

FROM: Tony Gallegos, Reclamation Engineer

RE: Site Inspection, SF Phosphates, Vernal Phosphate Mine, M/047/007, Uintah County, Utah

Date of Inspection: June 29, 1998
Time of Inspection: 1300 - 1650
Conditions: Sunny and hot
Participants: Ron Ryan, SF Phosphates; Tony Gallegos, and Lynn Kunzler, DOGM

Purpose of Inspection: To examine reclaimed areas in consideration of release

The inspection began with a brief meeting at the main mine office. We discussed the permitting required for the expansion of the current tailings impoundment associated with increasing the height of the tailings dam. This expansion will impound tailings further up the drainages covering some BLM lands. Some of the adjacent BLM lands are listed as an area of critical environmental concern (ACEC) under the current management plan for the resource area. We discussed the permitting required by the Division for such a modification, and the possible coordination of permitting requirements and timeframes with the BLM. We discussed the current MOU between the Division and BLM for 3809 regulations and how that would apply to this situation. This tailings expansion would also require moving the reclaim barge within the tailings pond. The reclaim barge is used to decant water from the tailings impoundment for recirculation through the mill process. It's likely that in the near future SF Phosphates will coordinate an onsite meeting of the various permitting entities, like the BLM, Dam Safety, the Division, and other agencies to discuss the permitting of this proposed tailings expansion.

We then visited several of the reclaimed areas at the mine site. All areas visited were referenced using the dates and names shown on the annual report map received by the Division on January 20, 1998. The first stop included several areas reclaimed in 1993 in section 20, having 35, and 20 acres. Another area examined was listed as 76.7 acres reclaimed in 1995. We walked a loop through these three areas to examine the revegetation success. A photograph of the first area looking to the north shows a small drainage with several isolated trees in the background. The surface of the reclaimed areas was rough and uneven. This roughness minimizes erosion and improves water retention for vegetation.

While walking through these areas it became evident that, in general, the older areas had more plant diversity than the younger areas. The more recently reclaimed areas had alfalfa as the dominant vegetation type. Plant species observed on this site included alfalfa, western wheatgrass, crested wheatgrass, yellow sweetclover, thickspike wheatgrass, russian wildrye, pubescent wheatgrass, sweetvetch, indian ricegrass, globemallow and squirreltail (these same species were found on all areas, with the only differences noted being the relative abundance of each species and small differences in the % ground cover). Vegetation cover sampling resulted in an estimated 61% ground cover, which far exceeds the revegetation success standard of 28%. These areas can now be fully released. There is concern with the lack of shrubby vegetation. There were few shrub species present, mainly sagebrush and fourwing saltbrush which were invading on the edges. The area had been seeded with the approved seed mix which did not include any shrub seed. In 1996, the Division requested the seed mix be revised to include shrub species. Areas seeded after 1996 will be expected to have a shrub component for reclamation success. (A copy of the Division's April 28, 1995 seedmix recommendation is attached.)

The next areas visited were near the conveyor. These areas are identified on the annual report map as reclaimed in 1995 and covering 11, 15, and 0.7 acres. A photograph was taken of the area looking towards the south. The slopes in this area generally face the east and are steeper than the previous areas examined. The grasses on these slopes were sparse compared with the areas previously examined. In general, the amount of grass is sparse on the more recently seeded areas when compared with the older areas. Vegetation cover in this area was estimated to be 55%. Again, this far exceeds the revegetation success standard. Also of note, this area was planted with seedlings of fourwing saltbush which were doing quite well. It was indicated that a 50% survival rate of the seedlings was estimated, which is about average for this type of site. These areas can also be fully released.

The next area visited was reclaimed in 1995 and labeled as 4.9 acres on the annual report map. This area was a roadway through an area previously reclaimed. The roadway was reclaimed last after additional access for reclamation was not needed. The roadway was constructed on the surface of the orebody and consequently, the replaced topsoil was thin in spots. It is likely that the topsoil used in reclaiming this roadway was stockpiled longer. A photograph was taken of this area looking north. The reclaimed roadway contains less alfalfa than the adjacent areas, and more grass species than alfalfa. There are more grasses than alfalfa here, probably due to the thin layer of soil. As with the other areas, the 50% ground cover exceeds the reclamation standard and this area can now be fully released.

The next area visited was reclaimed in 1993 and labeled as 6.6 acres on the annual report map. This area was examined by Divisions staff and SF Phosphates in a previous year and could not be released at that time. SF Phosphates has reseeded this area since that last examination. While at this area, we viewed a blast at the main mine area to the west. A sequence of photographs was taken of the dust cloud from the blast. This was the last reclaimed area examined during this inspection. This area contained a larger percentage of Indian ricegrass and less alfalfa. The ground

cover exceeded 35%, which is greater than the revegetation success standard. This area can now be fully released.

An area listed as being reclaimed in 1993 and covering 5 acres on the annual report map could be seen in the distance from the last area visited. This area has steep slopes and soil conditions which hamper revegetation success. SF has performed some remedial seeding of this area as requested during a previous Division inspection. It appeared that vegetation cover in this area was still below the success standard. This five acre area cannot be released at this time and will need to be examined at a future inspection.

We then returned to the office for a brief wrap-up session before leaving the site. We discussed revising the seed mix and agreed that the Division would provide a new mix or research the files for a recent seedmix recommendation. The Division will send SF a separate letter describing the release of reclaimed areas and any bond adjustments needed. After leaving the office we learned that the guard at the main gate had left and we could not exit the site without security card access.

jb
Attachment: DOGM April 28, 1995 seedmix recommendation
cc: Ron Ryan, SF Phosphates
M047007.ins

Recommended Revegetation Species List
for

SF Phosphates, Inc.
Vernal Phosphate Mine
M/047/007

Prepared by DOGM April 28, 1995

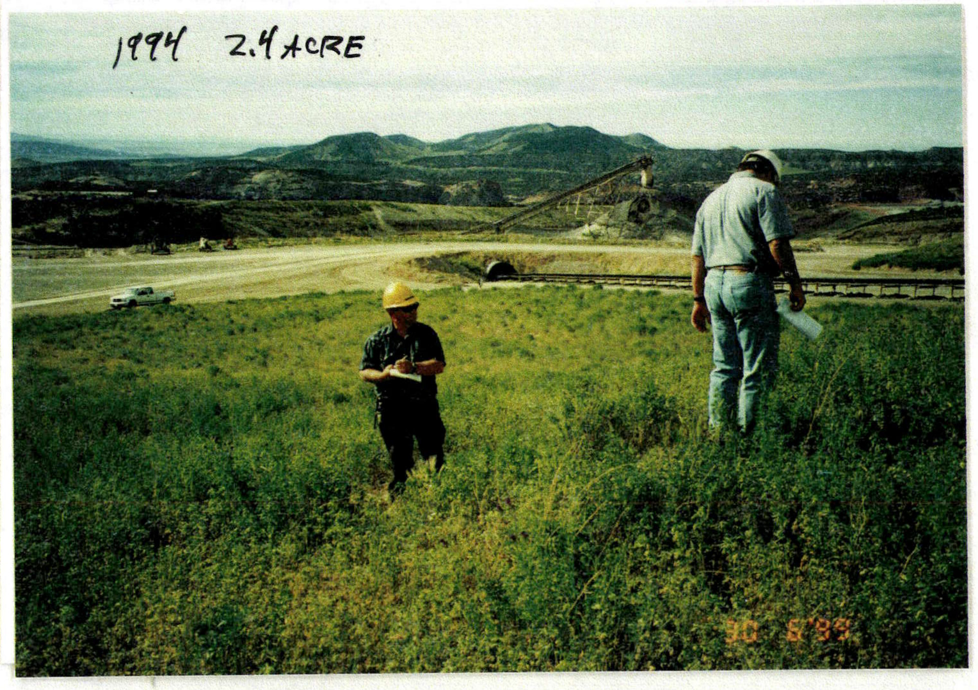
For final reclamation - all areas except tailings pond

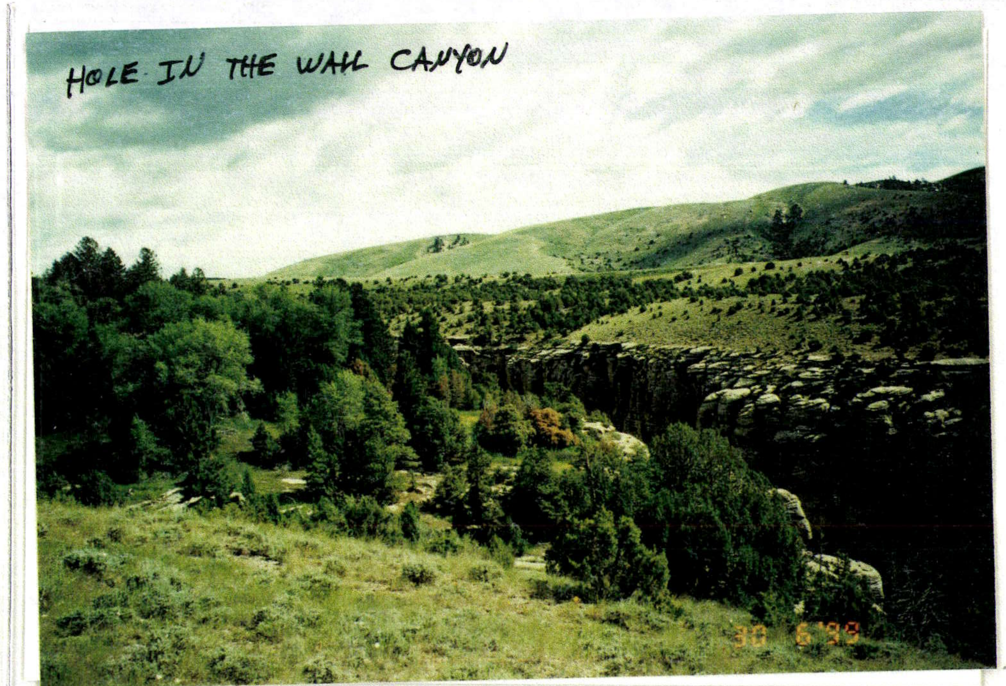
Common Name	Species Name	*Rate lbs/ac (PLS)
'Hycrest' crested wheatgrass	*Agropyron cristatum 'Hycrest'*	0.5
Intermediate wheatgrass	*Agropyron intermedium*	1.0
Orchard Grass	*Dactylis glomerata*	0.5
Basin Wildrye	*Elymus cinereus*	1.5
Indian ricegrass	*Oryzopsis hymenoides*	1.5
Ladac Alfalfa	*Medicago sativa*	1.0
Yellow sweetclover	*Melilotus officinalis*	0.5
Palmer penstemon	*Penstemon palmeri*	0.5
Small burnet	*Sanguisorba minor*	1.5
Mountain big sagebrush	*Artemisia tridentata vaseyana*	0.1
Wyoming big sagebrush	*Artemisia tridentata wyomingensis*	0.1
4-Wing Saltbush	*Atriplex canescens*	1.0
Rubber rabbitbrush	*Chrysothamnus nauseosus*	0.25
Forage kochia	*Kochia prostrata*	0.5
Bitterbrush	*Purshia tridentata*	1.0
	Total	11.45 lbs/ac

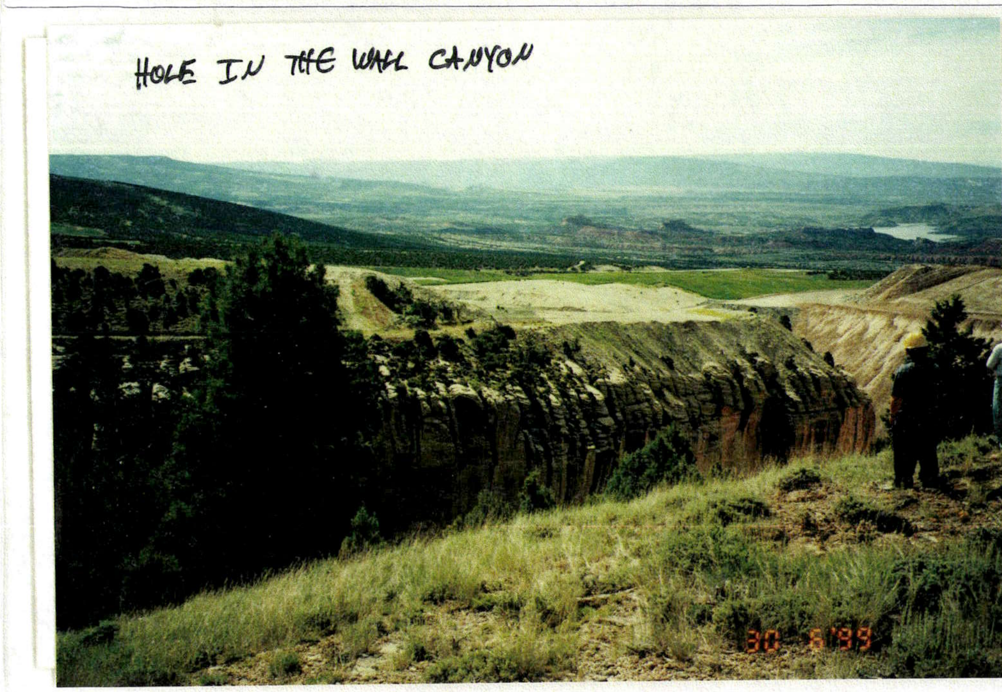
**This the recommended drill seeding rate.*
If the species are to be broadcast seeded, increase the rate by 50%.

For topsoil pile stabilization and other temporary revegetation areas

Common Name	Species Name	Rate lbs/ac (PLS)
Annual barley or rye		8.0
Ladac Alfalfa	*Medicago sativa*	2.0
Yellow sweetclover	*Melilotus officinalis*	2.0
	Total	12.0 lbs/ac


1994 2.4 ACRE
30 6'99


HOLE IN THE WALL CANYON
30 6'99


HOLE IN THE WALL CANYON
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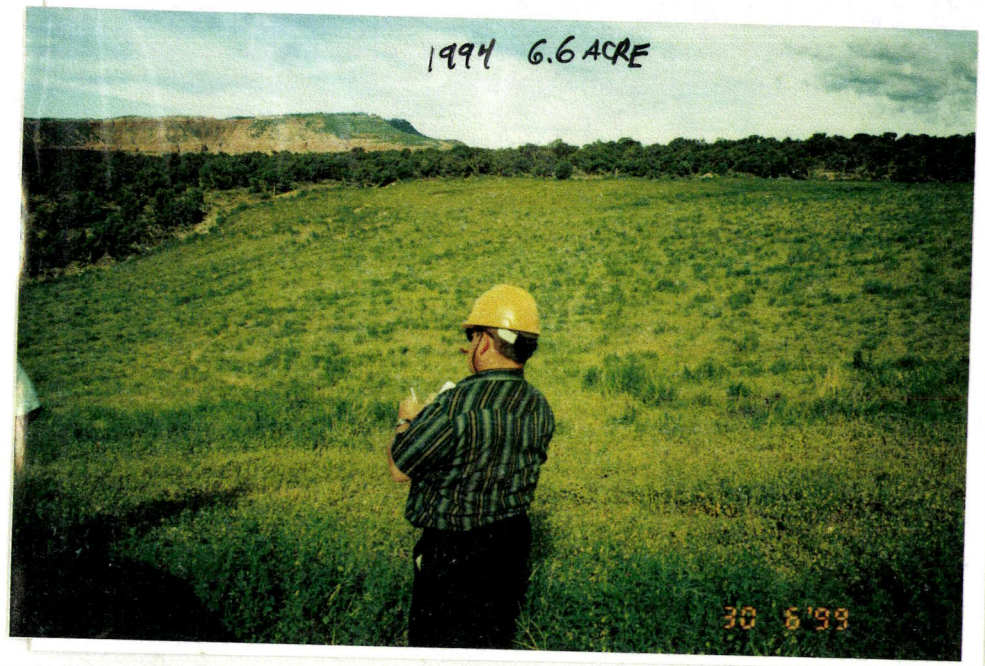
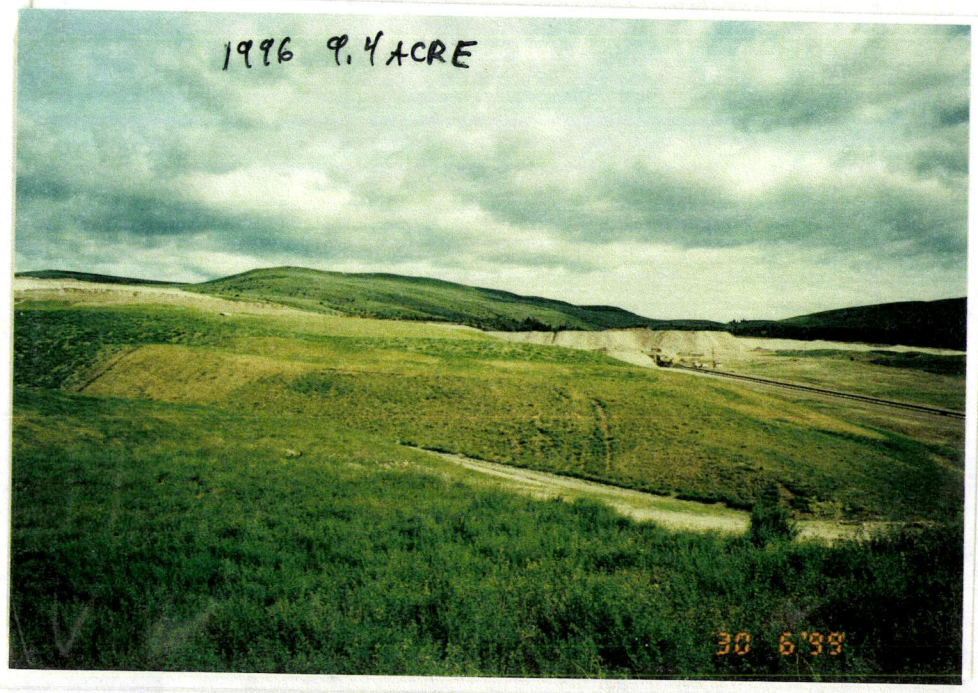
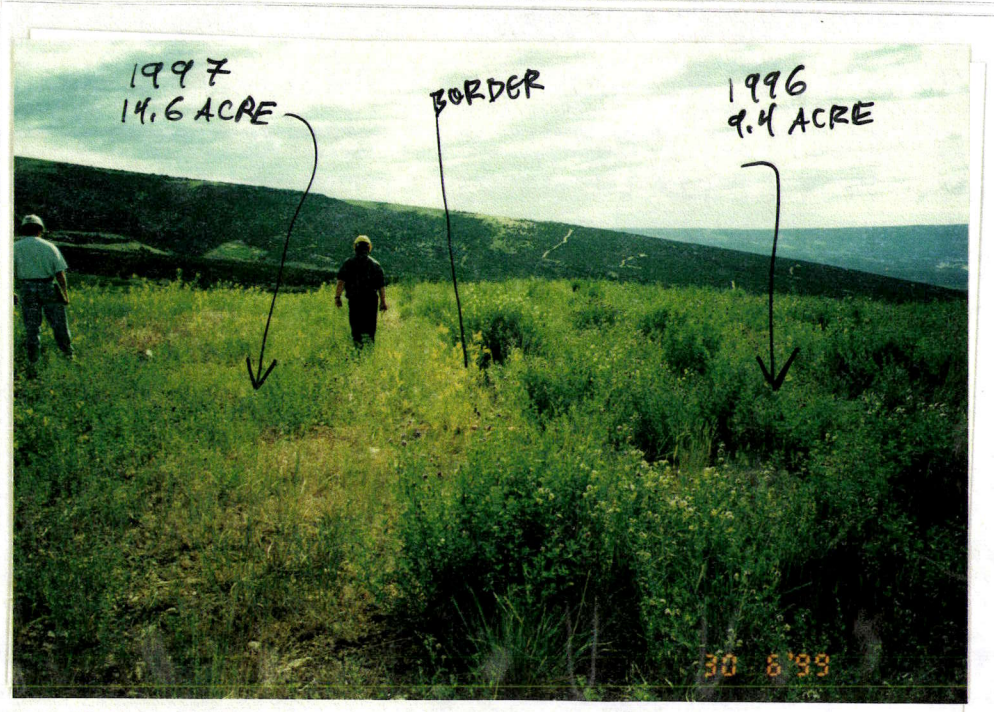
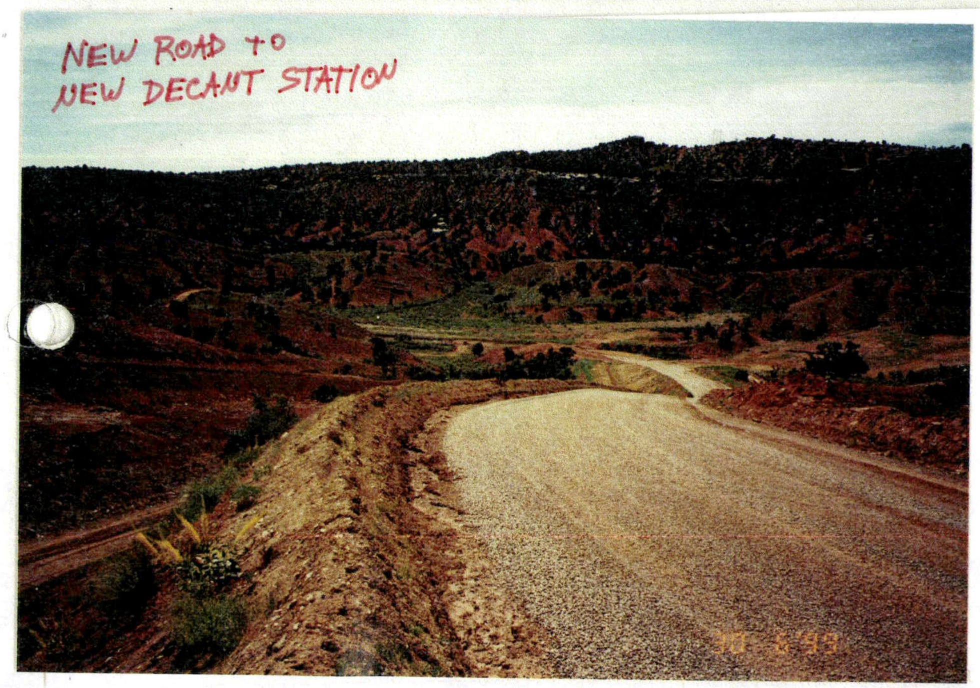
HOLE IN
THE WALL
CANYON
30 6'99

M/047/007 VERNAL PHOSPHATE Y2





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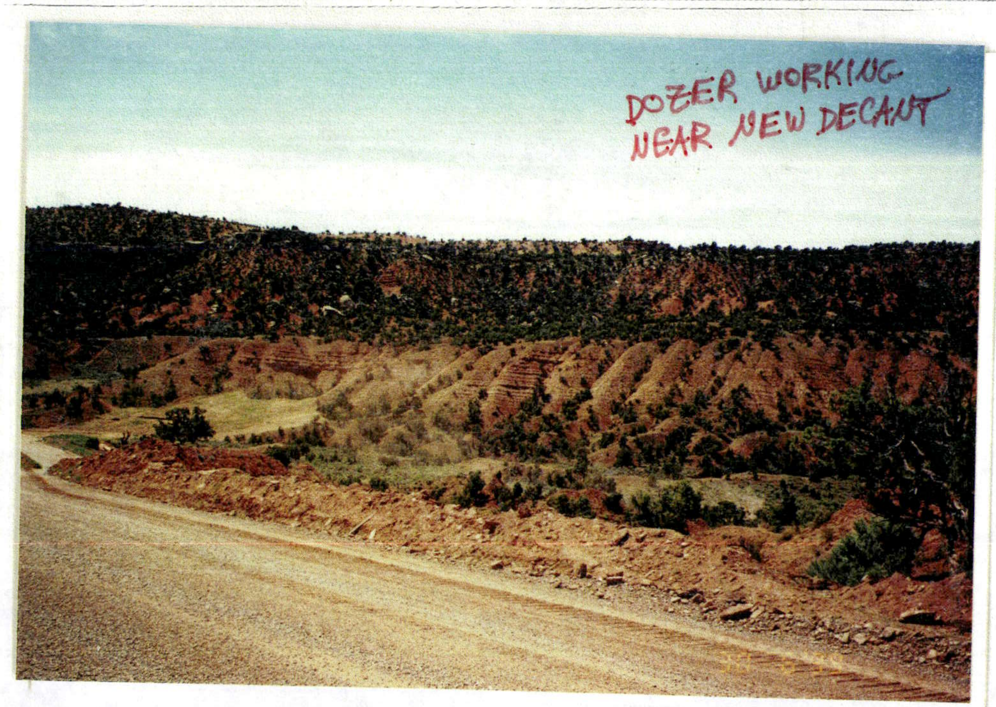
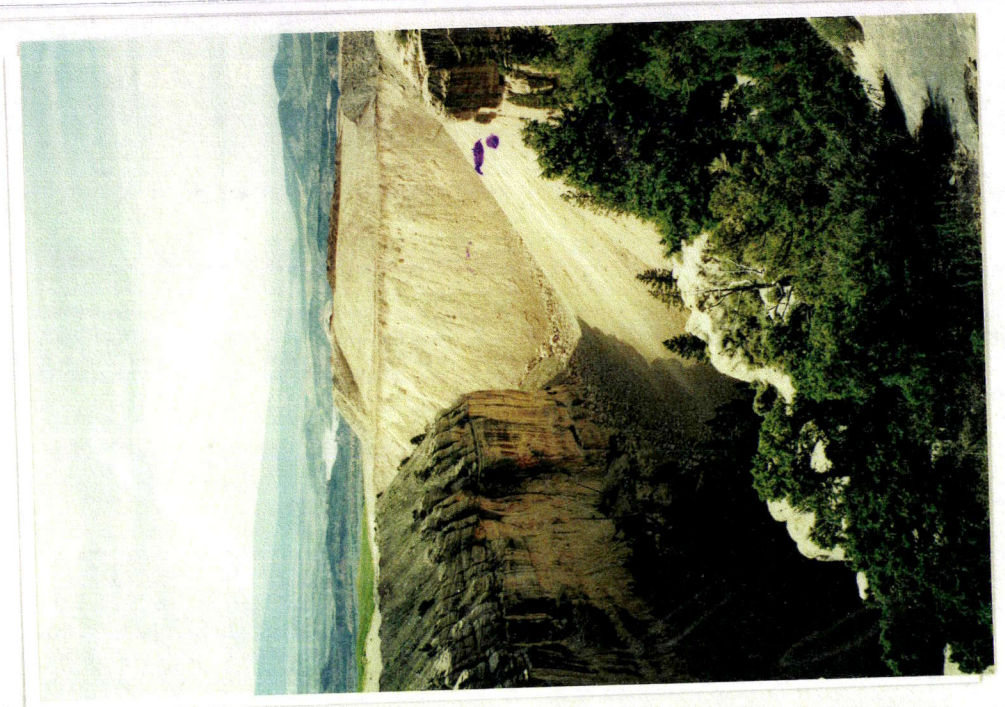
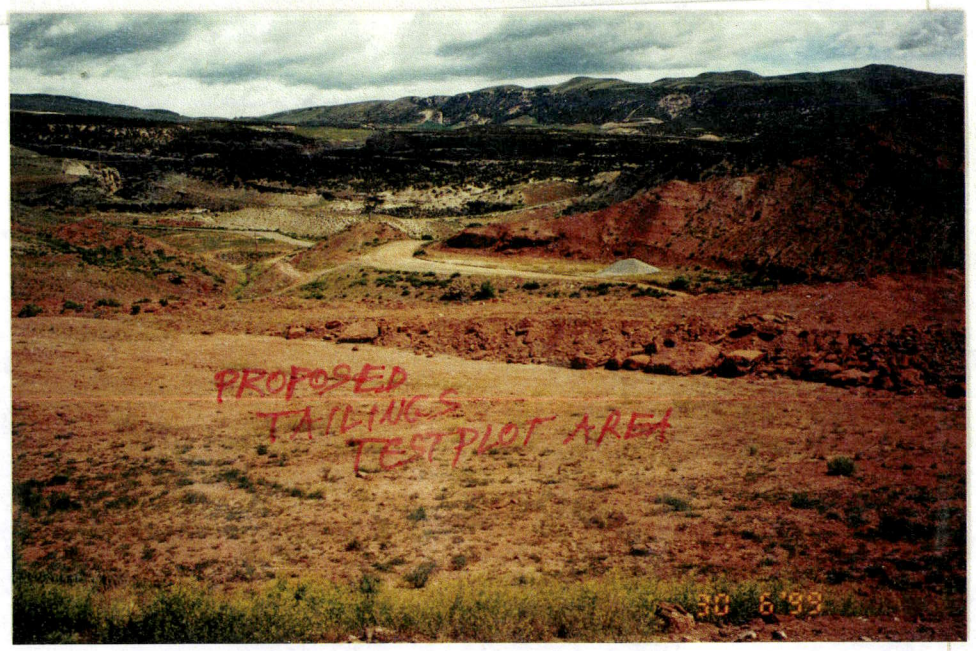
NEW DECANT STATION


DOZER WORKING
NEAR NEW DECANT

M/047/007 VERNAL PHOSPHATE 3/3





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VERNAL PHOSPHATE

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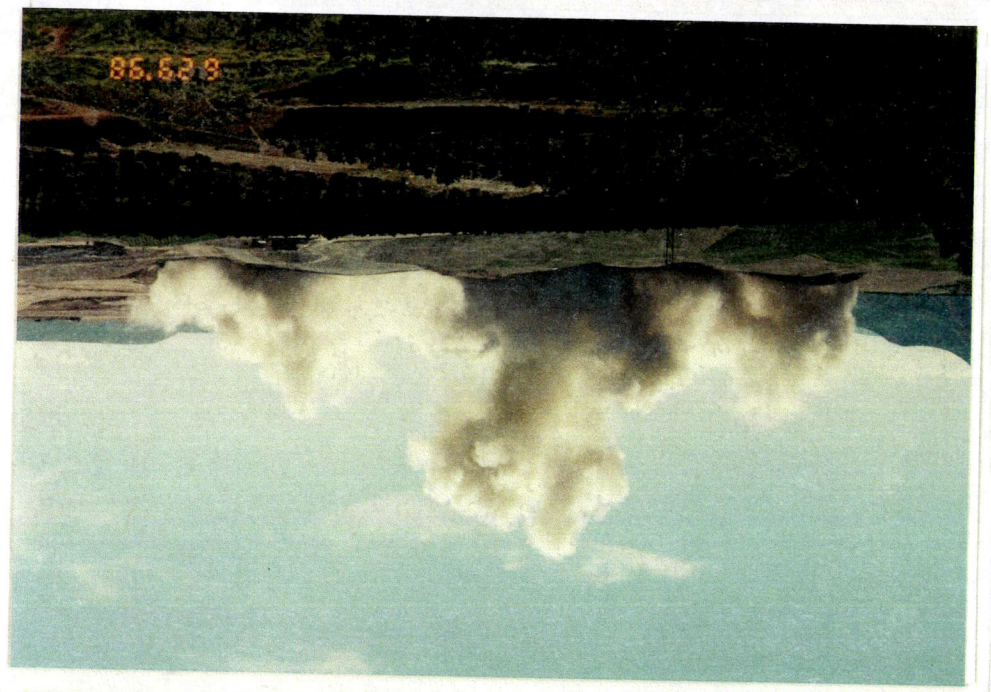
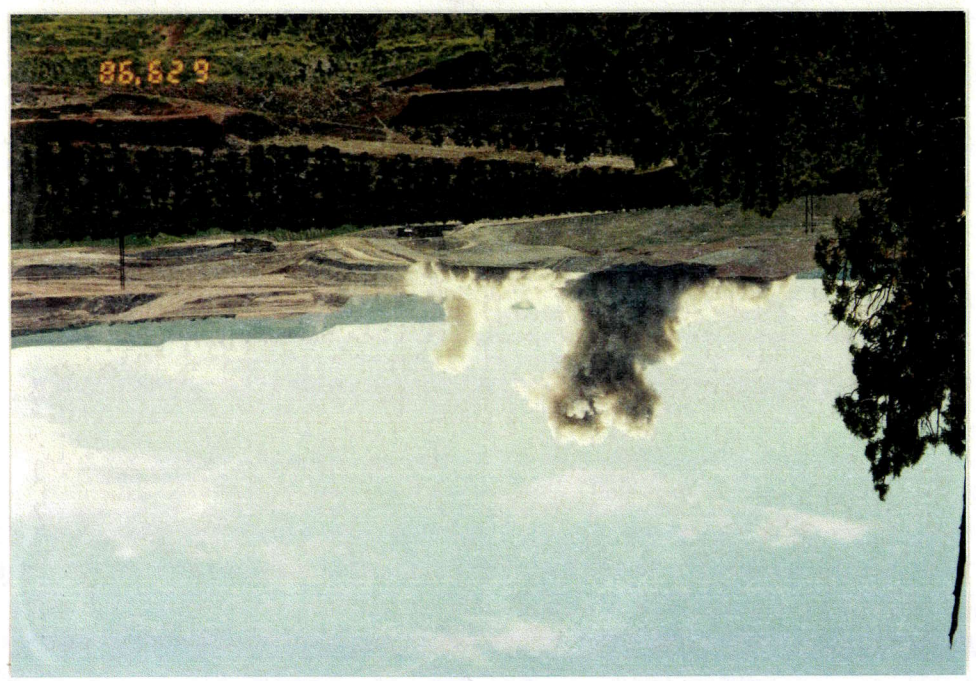
M/047/007
BLAST 2/3

VERNAL PHOSPHATE





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6/29/98 INSPECTION
SECTION 20 AREA